

**RESEARCH**

# Effects of Resilience Strength Training on Constructs Associated with Moral Injury among Veterans

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Resilience Strength Training (RST) is a peer specialist program that incorporates a military squad model of group trust and bonding to address problems specific to moral injury (typically involving collapse of meaning or faith, loss of trust, self-isolation, and the failure of relationships). The training program was offered to 97 male and female veterans (ages 24–73) at two Volunteers of America (VOA) affiliates. The veterans completed measures related to moral injury prior to RST training, immediately upon completion, and 6 months after the training. RST significantly improved their reported post-traumatic growth, perceived meaning in life, propensity to trust, dispositional optimism, positive attitudes toward themselves, personal self-esteem, and sleep quality, while decreasing their dependence on both alcohol and sleep medications. These improvements were more pronounced immediately after RST but remained significant on most measures 6 months after training had ended. The results are interpreted as supportive of RST as a vehicle for addressing moral injury in veterans through development of self-calming strategies, communication skills, and self-esteem, as well as development of a peer-supported community with shared experiences.

**Keywords:** moral injury; resilience strength training; veterans; mindfulness; sleep

In late 2009, a team of Veterans Affairs (VA) clinicians (Litz et al., 2009) published a conceptual essay about moral injury in military veterans, based on observations they were seeing in their clinical work that were not adequately captured by the post-traumatic stress disorder (PTSD) framework. They defined moral injury as:

Perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectations. This may entail participating in or witnessing inhumane or cruel actions, failing to prevent the immoral acts of others, as well as engaging in subtle acts or experiencing reactions that, upon reflection, transgress a moral code...that severely and abruptly contradicts an individual's personal or shared expectation about the rules or the code of conduct...The individual also must be (or become) aware of the discrepancy between his or her morals and the experience (i.e., moral violation), causing dissonance and inner conflict. (Litz et al., 2009, p. 700)

The first use of the term “moral injury” appeared in 1994 in psychiatrist Jonathan Shay’s book, *Achilles in Vietnam: Combat trauma and the undoing of character*, based on his salient clinical observations of veterans of the war in Vietnam (Shay, 1994). He later summarized his definition as “a betrayal of what’s right, by someone who holds legitimate authority (e.g., in the military, a leader), in a high stakes situation. All three” (p. 183). He includes the self as an authority in this later summary (Shay, 2014). Unlike the definition by Litz and colleagues (2009), Shay’s summary points to the cause of moral injury rather than describing the condition of having moral injury (i.e., inner conflict), which his earlier work described using the dramatic change in character of Achilles who is betrayed by his king.

Until moral injury entered the discourse of veteran suffering (Drescher et al., 2011), other terms had been used, such as “soldier’s heart,” “shell-shock,” and, most recently, post-traumatic stress disorder (PTSD), which appeared in the *Diagnostic and statistical manual of mental disorders* (DSM-III) in 1980. However, the complexity of moral injury is not captured in the current diagnosis and treatment protocols

for PTSD (Shay, 2014). Whereas PTSD symptoms require interventions that defuse and de-energize fear-driven phenomena, moral injury involves an identity crisis, a collapse of meaning or faith, a loss of trust, self-isolation, and the failure of relationships. It requires processing memory through perspective-taking and reconsolidation of thinking processes. While moral injury shares some symptoms in common with PTSD such as anger, depression, anxiety, nightmares, insomnia, and substance misuse, moral injury is not a fear-based disorder. The highest rates of comorbidity involving moral injury and PTSD result from betrayal, not fear (Jordan et al., 2017), though causality for this comorbidity is still not clear.

Moral injury has no diagnostic threshold and its social and behavioral impacts reflect damage to core belief systems, and manifests with unique psycho-spiritual negative moral emotions such as guilt, shame, despair, grief, remorse, alienation, betrayal, blame, self-condemnation, and outrage against leaders or self (Litz, et al., 2009; Shay, 2014). PTSD and moral injury can be comorbid, but some protocols used to treat phobias and anxiety, such as exposure therapy, can deepen the suffering of moral injury when veterans must repeatedly revisit the details of anguishing memories that cause them shame, humiliation, or guilt (Shay, 2014; Nash, 2016). Whether moral injury should be considered a mental health disorder rather than an appropriate response to conditions of extremity such as war, or a form of complex PTSD, as defined by Judith Herman (1992), remain unsettled questions. A psychometric survey, the Moral Injury Events Scale (MIES), measures levels of exposure to events that are identified as morally injurious, using definitions by Litz and colleagues (2009) and Shay (1994), and it can be used to evaluate experiences that are a “necessary precursor to evaluating the biological, psychological, social, and spiritual consequences of moral injury” (Nash et al., 2013).

As a complex phenomenon grounded in an individual's faith or meaning system and capacity for empathy, moral injury involves identity constructs about life purpose and self-worth, previous experiences with the consequences of moral failure, mental capacities for reflection, existing primary relationships, and ability to trust. Without some understanding of military training and culture related to honor, integrity, service, camaraderie, sacrifice, courage, and mission, experiences of moral injury may be opaque or incomprehensible to civilians unfamiliar with military life (Litz et. al. 2016). Moral injury in veterans may be intensified or overridden by a mental health disorder or history of childhood trauma, but in and of itself, it can be the ordinary response of a moral, idealistic, service-oriented, empathetic adult to chaos, violence, and devastating life conditions such as war (Shay 2014).

Litz and colleagues (2016) suggested a protocol for moral injury called “adaptive disclosure” in a book by that name. They noted that while the protocol can be helpful for people experiencing moral injury, recovering from it requires more, including reintegration into community support systems that enable the rebuilding of meaning, identity, trust, and

relationships. Among the few evidence-based programs that seek to address moral injury is “Building Spiritual Strength” or BSS (Harris et al., 2011). It is administered alongside PTSD treatments and involves small group conversations guided by chaplains trained in addressing questions about a “Higher Power,” theodicy, and forgiveness. BSS has shown results superior to PTSD treatments alone (Harris et al., 2018). Guidance by chaplains accords with their trusted historical role in the military as confidants and counselors (Waggoner, 2019) and aligns with the adaptive disclosure protocol for moral injury that recommends conversations with “a benevolent moral authority” (Litz et al., 2009, p. 703). Processing in a group creates a community context for trust and relationships.

As a complex, intersecting identity problem, moral injury may continue to resist reduction to a medicalized approach to mental health that identifies symptoms and protocols administered via a transactional, temporary treatment relationship. Its complexity may, instead, enable a variety of strategies to mitigate its suffering, from secular therapy to religious rituals and the arts. It currently has no formal diagnosis, but it has generated a considerable body of published work since 2010 by mental health professionals, theologians, philosophers, journalists, chaplains, and religion scholars.

This current study of moral injury in veterans explored the efficacy of a peer group processing program in alleviating moral injury in military veterans, independent of PTSD treatments and without the presence of chaplains or other professionals.

### **The Resilience Strength Training (RST) Program**

Resilience Strength Training (RST) is a peer-specialist moral injury program. Its creation in 2017 was informed by several factors: (a) Half of OEF/OIF veterans reported difficulty in adjusting to civilian life, but only 25% sought mental health treatment and even fewer complete treatment protocols (Pew Research Center, 2011; Visco, 2009); (b) moral injury was suspected to precipitate or intensify PTSD and was considered a larger contributor to veteran suffering than PTSD (Litz et al., 2009; Jordan et al., 2017); (c) veterans who sought clinical help for PTSD concurrently experienced moral injury but failed to recognize the problem, especially when treated by a clinician unfamiliar with questions of theodicy or moral failure (Harris et al., 2011; Harris et al., 2018); and (d) moral injury could occur without PTSD symptoms. Thus, in the current study, we sought to mitigate character-destabilizing constructs associated with moral injury through a peer-facilitated, multi-faceted RST program with small groups of veterans.

We tested the novel RST training program in Volunteers of America (VOA) affiliates in Los Angeles County and Greater New York City, which have robust veteran service programs. Both affiliates serve three to four thousand veterans annually and were well positioned to collect and manage data needed for the project.

The RST program utilizes peer co-facilitators in a military squad model to encourage group trust and bonding

characteristic of military culture. All participants receive a squad book at the outset which has information about moral injury, a description of the program, a schedule, instructions for maintaining self-care and mindfulness practices, and a place to enter contact information for others in their group. Those finishing the 60-hour program receive a certificate of completion.

A multidisciplinary design team created the RST program, which is administered via trained peer co-facilitators using a comprehensive facilitators' manual that offers information about moral injury in veterans, a guide to co-facilitation, strategies for dealing with potential problems, and step-by-step instructions on the use of alternative therapies, the construction of *sui generis* group rituals, and the implementation of each module of the design over the course of 60 hours.

The program design was informed by research on the spiritual and religious aspects of moral injury (Drescher et al., 2013; Harris et al., 2011), on mindfulness (King et al., 2013), on the adaptive disclosure protocol (Litz, et al., 2016), and on the efficacy of ritual in the neurological transformation of intuitive experiences of values and morality (Graybiel, 2008). In addition, the research director participated ex-officio on the design team to assure congruence between the program and the research plan and the project director participated ex-officio as the author of the all documents used to implement the program.

Program administrators for both affiliates were VOA clinical staff already working in their respective veterans' services program who requested to be re-assigned to RST. The administrators had attended several previous VOA seminars on moral injury and received additional training in the alternative therapies and spiritual practices used in the RST design. The initial veteran peer co-facilitators in both affiliates were recruited for training via their already-existing VOA Battle Buddy Bridge, peer support programs. The administrators and on-call clinicians, the project director, two chaplains, and a mindfulness expert trained the first RST facilitators for both affiliates together in Los Angeles during a 5-day residential immersion that involved practicing the program elements in mock sessions.

After the initial RST groups met in the two locations, additional peer facilitators were recruited from participants completing the program, who were trained by the administrators and the experienced facilitators at each location. The administrators supported the facilitators on site throughout the 60-hour process assisted by an on-call clinician. The administrators and clinicians regularly debriefed the facilitators, provided them feedback, and offered trouble-shooting advice when problems arose, with input from the project director who was present on-site for most of the RST sessions in both locations. The administrators also had the support of the clinician, the project director, and the senior advisor, a retired VA psychiatrist, in the event a participant needed referral to mental health services. In the current study, we recruited participants from the two sites and evaluated the effectiveness of the novel resilience strength training (RST)

program on veterans with moral injury and further assessed its effectiveness after a period without further training.

## Method

### *Participants and Design*

Veterans were recruited through printed and electronic advertisements on VOA notice boards and social media and through recruitment presentations by RST administrators at the veterans services sites in Los Angeles County (VOALA) and New York City (VOAGNY). Brochures were placed in Veterans Affairs mental health services offices by VOA veterans who completed RST who were also receiving VA treatment. Veterans were also referred to RST via case managers and other veterans trained in VOA's Battle Buddy Bridge (B-3), peer specialist support program. These B-3 veterans were also the first facilitators in both locations trained to administer RST.

Recruitment materials invited veterans to participate in a peer-facilitated RST program for veterans to address moral injury. RST was promoted as an education and training program, eschewing the use of mental health terms such as treatment or therapy to avoid suggesting that moral injury is a mental health disorder. A mental health diagnosis did not, however, disqualify veterans from participating in RST. All promotional materials mentioned moral injury and provided a short definition, and at recruiting events, a 10-minute video was played in which a retired Navy psychiatrist and moral injury researcher, William P. Nash, explained it as an ordinary human experience (Nash, 2017).

The VOALA and VOAGNY affiliates offer services to veterans and their families addressing homelessness, unemployment, lack of education, traumatic brain injury, substance misuse, post-traumatic stress disorder, and other mental health challenges. Participants included veterans already receiving VOA services, who were referred to RST by their case managers, as well as others who were contacted through community programs for veterans. Some participants were also referred to the program by their Veterans Affairs case managers or therapists.

The administrators screened veterans wishing to sign up for RST sessions by speaking to them briefly either in-person or by phone to answer any of their questions, to encourage their participation, and to inform them about the guidelines for participation. These guidelines included refraining from using alcohol and illegal drugs or from bringing them or any weapons to the program, committing to attending the complete program, and receiving clearance to attend RST from their provider if they were under medical or clinical care. The administrator also used the initial conversation to determine if the veteran appeared oriented to reality and would be able to engage in a focused conversation.

All participants in the RST program were invited to be part of the research study component, which involved completion of a series of psychometric instruments at three time points: before the RST program ( $n = 97$ ), immediately after completion of the RST program ( $n = 83$ ), and 6 months after the program ( $N = 36$ ). Participants received \$50.00 Amazon gift card at each of the three time points.

Participants signed an informed consent form prior to answering questions from a demographic questionnaire and 21 additional psychometric instruments (i.e., the survey). Each survey was administered through Qualtrics. Participants were given a code number prior to filling out the survey to maintain deidentified data. Their name and code number were kept in a secure location by VOA staff overseeing the RST program. All procedures and the informed consent were approved by the Institutional Review Board (approval: 1711-036-1711). Participation in the program and surveys was completely voluntary and the participants could discontinue their involvement at any time. The participants completed the survey in 60–90 minutes and were required to complete at least 80% of the questions on the survey in order to qualify for the subsequent survey. Staff from the VOA affiliates sent individual emails and texts to the participants with their unique code numbers, a link to the Qualtrics survey, and a reminder to take the survey six months after completion of RST. Participants had the option of completing the final survey at a VOA office site. Upon completion of each survey, the participants were directed to a website hosted by the VOA, where they received their \$50 Amazon gift card.

The demographic questionnaire was administered only during the initial survey prior to the start of RST. As seen in **Table 1**, we asked questions regarding age, race, gender, marital status, number of children, number and type of deployments, branch of service and frequency of attending religious services.

### **Psychometric Scales**

Below is a description of the multi-item psychometric scales included at each session. The survey included the same 21 scales,<sup>1</sup> administered in the same serial order, at all three

sessions (i.e., pre-training, post-training, and 6 months after training).

#### **Need for Closure (NFC)**

The NFC (Kruglanski et al., 1997) is a 47-item scale that measures an individual's motivation in regard to information processing and judgment. Need for closure can be defined as a desire for an answer for order to end further information processing and judgment. The scale can be further divided into three subscales: order, predictability, and decisiveness.

#### **Emotion Regulation Questionnaire (ERQ)**

The ERQ (Gross & John, 2003) is a 10-item scale that measures individual differences in the use of two emotion regulation strategies, marked by separate subscales: cognitive reappraisal and expressive suppression. Cognitive reappraisal is a strategy which involves changing an emotional response by reinterpreting the meaning of stimuli whereas expressive suppression is a strategy which allows an individual to mask body clues and signals to hide his or her current emotional state.

#### **Epistemic-Teleologic Scale (ET)**

The ET (Taylor et al., 2014) scale consists of 30 items that measure individual preferences for two types of cognitive strategies (i.e., epistemic and teleologic) which people use to change their attitude toward an object, such as job, romantic partner, or life.

#### **Moral Injury Event Scale (MIES)**

The MIES (Nash et al., 2013) is an 11-item scale that measures participants' perceived transgressions and perceived betrayals and is used to identify those who may be suffering from moral injury.

**Table 1:** Demographic Variables for Final Sample of Veterans who Completed All Surveys (N = 36).

<b>Variable</b>	<b>Description</b>
Gender	Male: 20, Female: 15, Unspecified: 1
Age	Median = 43.5, Range 24–73
Race	White: 9, African American: 10, Latino(a): 7, Hawaiian/Pacific Islander = 2, Two or More = 4, Unspecified = 4
Marital Status	Single = 12, Married = 8, Divorced = 14, Widowed = 1, Unspecified = 1
Children	None = 11, One = 4, Two = 10, Three = 5, Four = 3, Seven = 1, Unspecified = 2
Times Separated from Family	None = 11, Once = 6, Twice = 7, Three = 3, Four or More = 7, Unspecified = 2
Religious Attendance	Never = 12, Monthly = 10, Biweekly = 4, Weekly = 6, More than Weekly = 3, Unspecified = 1
Current Employment	Employed = 11, Unemployed = 24, Unspecified = 1
Service Branch	Army = 15, Navy = 13, Marines = 5, Air Force = 2, Unspecified = 1
Rank at Discharge	Median = E-3, Range E-1 to Major
Number of Deployments	None = 10, Once = 6, Twice = 7, Three = 5, Four or more = 6, Unspecified = 2
Overseas	Yes = 23, No = 12, Unspecified = 1
Combat	Yes = 16, No = 19, Unspecified = 1



#### Alcohol Use Disorders Identification Test (AUDIT)

The AUDIT (Saunders et al., 1993) is a 10-item scale developed as a screening instrument for hazardous and harmful alcohol consumption. The scale measures alcohol consumption, drinking behavior, and alcohol-related problems.

#### Posttraumatic Cognition Inventory (PTCI)

This 36-item PTCI (Foa et al., 1999) scale measures trauma-related thoughts and beliefs related to post-traumatic stress disorder (PTSD). It identifies factors of negative cognitions about self, negative cognitions about the world, and self-blame.

#### Pittsburgh Sleep Quality Index (PSQI)

The PSQI (Buysse et al., 1989) is a 9-item scale that assesses sleep quality and sleep disturbances. It scores several sleep components including sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction.

#### Posttraumatic Growth Inventory (PTGI)

The PTGI (Tedeschi & Calhoun, 1996) is a 21-item scale that assesses positive outcomes as reported by participants who have experienced traumatic events. It provides information on relating to others, new possibilities, personal strength, spiritual change, and appreciation of life, through five different subscales.

#### Relationship Assessment Scale (RAS)

The RAS (Hendrick, 1988) contains 7 items that measure general relationship satisfaction.

#### Perceived Stress Scale (PSS)

The 10-item PSS (Cohen et al., 1983) measures the degree to which situations in a person's life are perceived to be stressful.

#### Meaning in Life Questionnaire (MLQ)

The 10-item scale was created to measure individuals' two dimensions of meaning: "presence of meaning" and "search for meaning." Presence of meaning is defined as how much a person feels his/her life has meaning and search for meaning is defined as how much a person strives to find meaning (Steger et al., 2006).

#### Duke University Religion Index (DUREL)

The DUREL (Koenig & Büssing, 2010) is a short five-item questionnaire designed to measure individuals' religious involvement on three dimensions: organizational religious activity, non-organizational religious activity, and subjective religiosity.

#### Satisfaction with Life Scale (SLS)

The 5-item SLS (Diener et al., 1985) scale measures individuals' global life satisfaction. This scale has been shown to be sensitive to detecting change in an individual's life satisfaction.

#### Delaying Gratification Inventory (DGI)

The DGI (Hoerger et al., 2011) is a 36-item scale that measures individuals' preference for foregoing strong immediate satisfaction for the sake of salient long-term rewards. Subscales measure food, physical, social, money, and achievement domains.

#### Life Orientation Test-Revised (LOT-R)

The 10-item LOT-R (Scheier et al., 2010) scale was designed to measure individual differences in generalized optimism and pessimism. The measure reflects on the behavioral, affective, and health consequences of the optimism-pessimism personality trait.

#### Rosenberg's Self Esteem Scale (RSE)

The 10-item RSE (Rosenberg, 1965) scale measures global self-worth by measuring positive and negative feelings about self. Self-esteem is defined as "the totality of the individual's thoughts and feelings with reference to himself as an object".

#### Attitudes Toward Self Scale (ATS)

The ATS (Carver, & Ganellen, 1988) is a 10-item scale designed to measure three potential self-regulatory vulnerabilities to depression: overly high standards, self-criticism, and generalization from single failure to a broader sense of self-worth.

#### Propensity to Trust Scale (PTS)

The 20-item PTS (Ashleigh et al., 2012) measures individuals' propensity to trust, which the scale authors define as general willingness to trust. The scale has three dimensions: trusting others, others' reliability and integrity, and risk aversion.

#### Mastery Scale (MS)

Mastery (Pearlin, et al. 1981) was hypothesized to be one of three psychological resources that protect individuals from the stressful consequences of social strain.

#### Compass of Shame Scale (CoSS)

The CoSS (Elison et al., 2006) assesses the use of the four shame-coping styles described by Nathanson (1992): attack self, withdrawal, attack other, and avoidance.

#### Dorsal-Ventral Questionnaire (DVQ)

The DVQ (Kosslyn, & Thompson, 2012) hypothesizes that a dorsal neural system is driven by expectations and processes sequences, relations, and movement, whereas the ventral system categorizes stimuli in parallel, focuses on individual events, and processes object properties.

#### **RST Program Details**

The RST program design uses multiple strategies that reflect the complex dimensions of moral injury and intersecting means to access, share, and process painful experiences. Peer facilitators expedite trust and emotional vulnerability via the military squad culture and ethos of camaraderie.

Complementary alternative therapies, such as guided meditation, journaling, and the visual arts, offer varieties of access to self-expression and inner awareness (Kopacz et al., 2016). Mindfulness breathing is used: (a) to enable calm, empathetic listening; (b) to support group members to stay present and engaged during times of intense emotional sharing; and (c) to prepare for sleep. Guided meditations to elicit painful memories, followed by freewriting in journals, begin the moral injury sharing sessions. To enable participants to control of their level of self-disclosure, participants are instructed that how much they share from their writing is up to them. Visual-creative strategies for self-disclosure are also used, including having participants create a mask of their military face, explain it to their group, and use it as a visual memory of their experiences. An hour before the evening meal, participants engage in yoga, sitting meditation, or labyrinth-walking, to learn self-calming skills and stress release strategies found across multiple religions that do not require a particular belief or are secularized practices (Ozawa-de Silva & Ozawa de Silva, 2010). The training also includes compassionate listening as a way to encourage empathy and positive group interactions.

Once moral injury memories are processed, writing, art, values clarification exercises, and reflective conversations encourage explorations of forgiveness and gratitude (Cornish & Wade, 2015; Currier et al., 2015), meaning, self-acceptance and life purpose, and awareness of each person's core humanity. Facilitators guide conversations about faith, theodicy, suffering, and forgiveness while respecting diversities of religions, humanist, and non-religious perspectives and discouraging proselytizing or arguments about beliefs. Near the end of their time together, participants are asked to reflect on changes in their moral meaning systems as they integrate their moral injury experiences. They construct a collective moral house made of all visual materials they have accumulated during the sharing sessions, which engages them in conversation about what they have learned and gained from each other and the process. Finally, participants are encouraged to consider how they will enact their recovery via restoring estranged relationships, civic engagement, or public service (Hodges, 2014). RST concludes with a certificate ceremony, where participants are encouraged to share something they gained from the program and what they intend to do upon returning home.

The program pilot lasted 60 total hours. The first four hours involved instructions for and taking two surveys. The next hour involved transitioning from the initial surveys into group training. Groups were administered in three different timeframes: seven continuous days in a retreat center or facility near their housing program, a full day each week for seven weeks, or one day a week for 3 weeks plus three consecutive days at a retreat center. RST groups involved two peer facilitators and from four to 11 participants. Data were collected from six cohorts of veterans in Los Angeles and seven cohorts of veterans in New York.

### **Data Analysis Plan**

The first step in the analyses involved data reduction to identify sets of dependent measures that contributed to relatively distinct higher-level constructs (Costello & Osborne, 2005). Data reduction was accomplished through an exploratory factor analysis (with varimax rotation) on pre-training scores for the 14 dependent measures that RST was intended to change: life orientation, self-esteem, attitudes toward self, post-traumatic cognitions, perceived stress, compass of shame, alcohol use, post-traumatic growth, meaning in life, satisfaction with life, relationship assessment, propensity to trust, delay of gratification, and sleep quality. The status of sleep quality, whether a dependent measure or a moderator variable, would be determined by the factor analysis.

After the factor analysis identified specific scales as the measures that contributed to constructs that might respond in a systematic way to RST, repeated measures analyses of variance (ANOVAs) and trend analyses were performed on each of those scales and its subscales (Girden, 1992). These ANOVAs compared participant scores at pre-training, post-training, and 6 months after training. ANOVAs were used to detect overall change; trend analyses were used to distinguish immediate from long-term change. It should be noted that all ANOVAs tested directional hypotheses that predicted improvement rather than deterioration, but we nevertheless used and report more conservative two-tailed probabilities.

The separate ANOVAs were followed by multiple regression analyses to determine the extent to which significant improvements might have been qualified by interactions (Aiken & West, 1991) with each of 14 possible moderator variables: need for cognition, emotion regulation, epistemic-teleologic orientation, moral injury events, religious involvement, dorsal versus ventral brain use, mastery, the veteran's current employment status, marital status, deployments, combat experience, overseas service, separations from their families, and sleep quality. For each of these possible moderator variables, our interest was in whether improvement was greater for veterans whose scores were at one end of the scale than for those at the other end.

## **Results**

### **Participant Demographics**

The 36 participants who completed all three surveys were included in the analyses. The results from the demographic questionnaire showed the median age to be 43.5 years and 20 males and 15 females (one participant did not answer this question). The majority of the participants served in the Army ( $n = 15$ ) or Navy ( $n = 13$ ) and had deployed at least once ( $n = 21$ ). Sixteen participants served in a combat zone. The complete results from the demographic questionnaire, administered in the pre-training survey, are shown in **Table 1**.

### **Analysis of Psychometric Measures**

Pre-training data from the all psychometric measures indicated scores within the established norms for each instru-

ment. A principle components analysis showed that seven of the dependent measures used in the present study loaded at least .62 on one of two factors with eigenvalues greater than 1.89 that explained 63% of the variance. The first factor comprised the following scales, with factor loadings in parentheses: Meaning in Life (.86); Alcohol Use (-.83); Post-Traumatic Growth (.69); and Propensity to Trust (.62). The second factor included Self-Esteem (.82); Negative Attitudes Toward Self (-.74); and Life Orientation (.68). We interpreted scales that loaded on the first factor as reflecting positive orientations toward one’s social environment, and scales that loaded on the second factor as reflecting positive orientations toward oneself. The Pittsburgh Sleep Inventory did not load on either factor, but produced reportable results, so it is described separately. The analyses to be reported include only veterans who completed the measures at all three times: pre-training, post-training, and six months after training.

**Orientation toward One’s Social Environment**

One goal of the training was to instill in veterans a more positive orientation toward their social environment. As shown in **Table 2**, that goal seems to have been achieved. The first section of the table shows results for five subscales and overall score on the Post-Traumatic Growth Inventory (Tedeschi & Calhoun, 1996). Repeated measures analyses of variance (ANOVAs) detected significant quadratic trends on all five subscales and the overall score (*ps* < .001). As suggested by the means, veterans improved dramatically on each of these

measures from their pre-training baselines to post-training, but then, without further training, reverted toward their pre-training scores. Encouragingly though, the average veteran retained sufficient benefit from the treatment to score more positively on relating to others,  $F(1, 35) = 4.46, p = .042, d = .42$ , new possibilities,  $F(1, 35) = 2.50, p = .100, d = .41$ , personal strength,  $F(1, 35) = 6.39, p = .016, d = .49$ , and overall,  $F(1, 35) = 4.58, p = .039, d = .44$ , 6 months after training had completed than they had at baseline, before the training began. This lasting effect of training on overall posttraumatic growth was greater for veterans who were currently employed rather than unemployed,  $t(34) = 2.35, p = .025, r = .38$ , and for those who had been separated from their families fewer rather than a greater number of times,  $t(32) = 2.35, p = .025, r = .38$ , but no other demographic variables qualified their six-month improvement.

The second section of **Table 2** shows results for the Meaning in Life Questionnaire (Steger et al., 2006). Repeated measures ANOVAs yielded significant quadratic trends (*ps* < .01), with initial improvement dissipating over the next six months, on both subscales and overall (*ps* < .01), but the average veteran retained sufficient benefit from treatment to score more positively on presence of meaning,  $F(1, 34) = 3.92, p = .056, d = .36$ , and overall,  $F(1, 34) = 4.67, p = .038, d = .45$ , 6 months after training had ended as compared to pre-training scores. These lasting benefits were greater for veterans who had never been married,  $t(33) = 3.27, p < .001, r = .41$ , were currently employed,  $t(33) = 1.93, p = .062, r = .32$ , had been separated from their families fewer times,

**Table 2:** Mean Scores on Measures Related to Positive Orientations toward Social Environment.

Measure	Subscale	Pre-Training	Post-Training	6 Months Later
Post-Traumatic Growth Inventory	Relating to Others	14.42 (1.43)	23.83 (1.41)	19.03 (1.45)**
	New Possibilities	12.97 (1.07)	19.06 (.80)	15.42 (1.09)*
	Personal Strength	9.86 (1.01)	15.14 (.63)	12.72 (.94)**
	Spiritual Change	5.06 (.56)	6.78 (.50)	6.08 (.60)
	Appreciation of Life	9.03 (.62)	11.72 (.45)	10.17 (.65)
	Overall	52.33 (4.20)	76.53 (3.27)	63.42 (4.26)**
Meaning in Life Questionnaire	Presence	21.57 (1.30)	26.22 (.93)	24.17 (1.00)*
	Search	4.33 (.28)	5.02 (.23)	4.67 (.19)
	Overall	42.97 (2.15)	51.31 (1.12)	47.53 (1.25)**
Propensity to Trust Scale	Mistrusting Others	5.08 (.17)	4.71 (.17)	4.71 (.15)*
	Others Reliable	3.98 (.20)	4.08 (.14)	4.28 (.12)
	Risk Aversion	2.74 (.18)	2.47 (.14)	2.66 (.17)
	Overall	3.25 (.12)	3.40 (.09)	3.52 (.08)**
Alcohol Use Disorders Identification Test	Overall	18.25 (1.65)	13.53 (.79)	14.39 (.91)**

Note: \* = *p* < .10; \*\* = *p* < .05. Data reported as M (SE).

$t(34) = 2.40, p = .022, r = .40$ , and had not been in combat,  $t(33) = 1.80, p = .08, r = .30$ .

The third section of **Table 2** shows results for the Propensity to Trust Scale (Ashleigh et al., 2001). Repeated measures ANOVAs yielded only linear trends. The average veteran reported less distrust of others,  $F(1, 34) = 3.68, p = .064, d = .39$ , and a greater overall propensity to trust,  $F(1, 34) = 4.16, p = .049, d = .42$ , 6 months after training than at pre-training. This effect of training on interpersonal trust was more pronounced for veterans who had been deployed for fewer months,  $t(28) = 2.88, p = .008, r = .36$ .

As shown in the fourth section of **Table 2**, veterans reported less use of alcohol after than before training, on the Alcohol Use Disorder Identification Test (Saunders et al., 1993), and that decrease was both linear and quadratic ( $ps < .03$ ). Veterans reported decreased alcohol use from pre-training baseline to 6 months after training had ended,  $F(1, 35) = 4.90, p = .034, d = .50$ . Improvement was greater for veterans who had not served overseas,  $t(34) = 2.49, p = .018, r = .40$ , and for those who had not seen combat,  $t(34) = 2.37, p = .024, r = .38$ . Improvement on these four measures suggested that RST training had its intended effect on veterans' perceptions of their social environment.

#### Orientation toward Oneself

A second major goal of the training was to instill in these veterans a more positive orientation toward themselves. As shown in **Table 3**, that goal also seems to have been

achieved. The first section of the table shows results for the Life Orientation Test (Scheier et al., 1994), which yielded both linear and quadratic effects ( $ps < .05$ ). Veterans reported greater dispositional optimism 6 months after training had ended than pre-training,  $F(1, 34) = 6.41, p = .016, d = .40$ . The effect of training was greater for those who had been deployed fewer months,  $t(28) = 2.04, p = .051, r = .36$ .

The second section of **Table 3** shows results for the Attitudes Toward Self scale (Carver & Ganellen, 1983), on which lower scores equal less vulnerability to depression. Veterans reported decreased overgeneralization from failures,  $F(1, 34) = 5.28, p = .007, d = .54$ , and decreased negative attitudes overall,  $F(1, 34) = 3.66, p = .064, d = .40$ , six months after training had ended than they had at pre-training.

As shown in the third section, veterans also reported increased self-esteem on the Rosenberg Self-Esteem scale (Rosenberg, 1965), the gold standard of self-esteem measures,  $F(1, 34) = 5.61, p = .002, d = .43$ , from pre-training to 6 months after training. The constellation of improvements on these self-orientation measures suggests that the training helped veterans to view themselves in a more positive light.

#### Sleep

The Pittsburgh Sleep Quality Index (Buyssee et al., 1989) yielded interesting results (**Table 4**). Veterans reported less difficulty getting to sleep,  $F(1, 33) = 9.40, p = .004, d = .53$ , waking up fewer times during the night,  $F(1, 34) = 8.38, p = .007, d = .50$ , experiencing a better quality of

**Table 3:** Mean Scores Related to Positive Orientation toward Self.

Measure	Subscale	Pre-training	Post-training	6 months later
Life Orientation Test-Revised	Overall	15.40 (.69)	17.74 (.68)	17.00 (.68)**
Attitudes Toward Self Scale	Unrealistic Standards	11.49 (.39)	11.97 (.41)	11.57 (.43)
	Self-Criticism	10.17 (.47)	10.97 (.47)	9.74 (.36)
	Overgeneralization	12.29 (.56)	11.06 (.62)	10.22 (.68)***
	Overall	33.94 (.97)	34.00 (.99)	31.58 (.96)*
Rosenberg Self-Esteem Scale	Overall	26.34 (.83)	29.54 (.82)	28.67 (.95)**

Note: \* =  $p < .10$ ; \*\* =  $p < .05$ ; \*\*\* =  $p < .01$ . Data reported as M (SE).

**Table 4:** Mean Scores on the Pittsburgh Sleep Quality Inventory.

Measure	Item	Pre-training	Post-training	6 months later
Pittsburgh Sleep Quality Inventory	Minutes to Fall Sleep	49.25 (5.68)	44.42 (5.95)	52.50 (7.52)
	Hours of Sleep	5.06 (.25)	5.79 (.27)	5.30 (.31)
	Trouble Getting to Sleep	2.19 (.19)	1.51 (.22)	1.58 (.21)***
	Waking During the Night	2.16 (.19)	1.66 (.21)	1.61 (.21)***
	Sleep Quality	2.11 (.17)	2.54 (.14)	2.54 (.18)***
	Sleep Medications	1.48 (.24)	1.33 (.22)	1.07 (.21)**
	Daytime Dysfunction	.56 (.15)	.53 (.15)	.46 (.15)

Note: \* =  $p < .10$ ; \*\* =  $p < .05$ ; \*\*\* =  $p < .01$ . Data reported as M (SE).



sleep,  $F(1, 33) = 4.76, p = .007, d = .53$ , and taking fewer medications to sleep,  $F(1, 33) = 2.48, p = .038, d = .29$ , 6 months after the training had been completed than before it began. Although they did not sleep more hours after than before training, greater post-training hours slept per night predicted lower post-training levels of stress (Cohen et al., 1983) [ $t(34) = -3.67, p < .001, r = .53$ ], increased dispositional optimism (Scheier et al., 1994) [ $t(34) = -2.34, p = .025, r = .34$ ], and higher levels of self-esteem (Rosenberg, 1965) [ $t(34) = 3.91, p < .001, r = .56$ ].

Also, lower post-training difficulties in staying awake during the day predicted greater lower post-training levels of stress (Cohen et al., 1983) [ $t(34) = 3.49, p < .001, r = .51$ ], more optimism (Scheier et al., 1994) [ $t(34) = -2.34, p = .021, r = .38$ ], more self-esteem (Rosenberg, 1965) [ $t(34) = -2.30, p = .028, r = .37$ ], more positive attitudes toward relationships with others [ $t(34) = -2.39, p = .023, r = .37$ ], new possibilities [ $t(34) = -2.12, p = .042, r = .34$ ], and personal strength [ $t(34) = -2.40, p = .022, r = .38$ ] (Tedeschi & Calhoun, 1996), less frequent negative thoughts about themselves [ $t(34) = 2.39, p = .023, r = .38$ ] and the world [ $t(34) = 3.90, p < .001, r = .56$ ], along with higher lower levels of self-blame (Foa et al., 1999) [ $t(34) = 3.35, p = .002, r = .50$ ], lower perceptions of moral transgressions by themselves and others (Nash et al., 2013) [ $t(34) = 2.69, p = .012, r = .41$ ], and greater lower tendencies to withdraw [ $t(34) = 2.77, p = .009, r = .43$ ], avoid [ $t(34) = 2.30, p = .028, r = .37$ ], and attack both the self [ $t(34) = 3.98, p < .001, .56$ ] and others [ $t(34) = 2.10, p = .044, r = .34$ ] (Elison et al., 2006). Sleep and its effects on daytime function clearly played a central role in concepts related to moral injury, and the training employed in the present study significantly improved veterans' sleep, while simultaneously moderating other problems and reducing their use of sleep medications.

## Discussion

The positive results found in the data for RST indicate that it is successful in mitigating the negative impacts of moral injury in veterans. Nash (2016) suggested the facets of moral injury include a damaged self-concept, social alienation, a loss of self-regulation, and a damaged concept of the world. Recent investigations and reviews of moral injury support these being common attributes of moral injury (Held et al., 2019; Kelley et al., 2019; Koenig et al., 2019; Williamson et al., 2019). The principle components analysis of the psychometric measures used in the present study indicated the impact of RST was focused on two factors, orientation towards one's social environment and orientation towards oneself. The measures specifically indicate RST was beneficial in reducing thoughts and feelings associated with self-destruction and stress, enabling pro-social behaviors such as trust, elevating self-worth, and providing more positive anticipation toward the future.

One indication of early positive impacts of the program occurred in the midst of the program and before the survey was taken at the completion of the 60 hours. Participants sometimes came to breakfast on the second or third

morning reporting they experienced their first full night's sleep in years or decades. Others appeared visibly refreshed overnight, and the quality and nature of the conversations at meals changed in warmth, friendliness, and self-disclosure with administrators and the project director, who did not participate in the groups. Facilitators and administrators reported stories of participants calling people important to them to discuss how they were being positively affected, calls which happened in nearly every group. The participants also reported making such calls directly to the project director. In one case, a 72-year old disabled USMC veteran of Vietnam called his female companion to tell her "you're going to like me a whole lot better when I get back." Six months after RST, they were married and he had their names tattooed on his left arm.

Participants in RST reported an improvement in the quality of their sleep. Disturbances in sleep have been well documented in veterans (Lewis et al., 2009) and likely amplify feelings of stress and increase the risk of suicide (Pigeon et al., 2012). Sleep disturbances often lead to the use of medications that are helpful in the short-term but have negative side-effects if taken long-term (Nakamura et al., 2011; Rosenberg, 2006). The data reported from the current study suggest RST improves the overall quality of sleep and reduces the need for sleep medications. The benefits of a higher quality of sleep may be seen by this variable predicting lower perceived stress and increased optimism in participants following RST.

The beneficial impacts of RST appear to be enduring. The results at post-training and 6 months later indicate significant improvement when compared to pre-training. Although with some measures there was a drift back towards pre-training scores at 6 months, in most cases the significant improvement was maintained. These enduring effects may be due to the continued use of self-calming and communication skills learned during RST, as well as the development of a peer-supported community with a shared experience. In addition, one element of the RST program was to ask participants to make a commitment to engage in a service project or to rebuild estranged or abandoned relationships. Self-reports and reports from case managers to the administrators indicate most participants followed through on their commitments, which included participants making a pledge together not to die by their own hand, re-establishing ties to families after years or even decades of separation, becoming a peer specialist to help other veterans, volunteering at a senior center to offer company and conversation to those without visitors, joining a band, and hosting a weekly arts and crafts time for children in a low-income neighborhood. Testimonials suggest participants shared their RST experiences with their families and local communities long after the completion of the program.

The participant attrition observed with the third survey is likely attributable in part to the length of time of 6 months between the end of participation in the program and the administration of the final survey. The total length

of the psychometric survey (60–90 minutes) was also a likely factor. For example, several veterans who had reported improvement on the second survey at the end of training, including two who later became facilitators, reported to the program administrators that they did not take the third survey because they had found it onerous to take it the first two times. They wanted the administrator to know they were still doing well. In addition to this self-reporting to the administrators, both locations held reunion events for participants in the fall of 2019. Among attendees were several veterans who struggled to complete the program because of the level of childhood and military traumas, including sexual traumas, they carried, and they did not take the third survey. They self-reported at the reunions that they were doing much better, which was evident in their personal appearance and the changes they had made in their lives. Finally, several spouses and children at the reunions thanked the administrators and project director for saving their families. None of these testimonials were solicited. Instead, participants and their families sought out the administrators and project director to report how much better they were doing and how greatly their lives had been enriched and improved.

At the end of May 2019 in Los Angeles, at a national conference on moral injury, the director of research and project director for RST taught a ten-hour seminar about the program, which included a panel of nine veterans from both affiliates who had completed the RST program. Each veteran talked about what they learned and what they had received from their experience in RST. Feedback from attendees of the seminar was surprise not at the value of the program but at the clarity and sophistication of each veteran's particular statement describing how they benefited. One participant, a Vietnam era veteran, opened his comments with, "Before RST, my life was gray. Now I live in technicolor."

### Note

<sup>1</sup> The term "scale" refers to an entire multi-item questionnaire rather than to any one item.

### Additional File

The additional file for this article can be found as follows:

- **Barth\_et\_al\_Moral\_Injury.** Data from Moral Injury Among Veterans. [https://osf.io/ync2b/?view\\_o](https://osf.io/ync2b/?view_o)

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The authors have no competing interests to declare.

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TMB and RNB prepared the grant proposal submitted to the Bristol-Myers Squibb Foundation. CGL assisted in selection of psychometric measures to include in the survey, VJT led data collection, compilation, and organization. All authors wrote various sections of the manuscript and approved a final draft prior to submission.

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